

# INSTALLATION MANUAL

## PACKAGED AIR CONDITIONER

Model No.

Urban Multi Series

(Ceiling suspended type)

**CS-32TMJPL**

**CS-63TMJPL**

**CS-100TMJPL**

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLATION.  
KEEP THIS MANUAL IN A HANDY PLACE FOR FUTURE REFERENCE.

LESEN SIE DIESE ANWEISUNGEN VOR DER INSTALLATION SORGFÄLTIG DURCH.  
BEWAHREN SIE DIESE ANLEITUNG FÜR SPÄTERE BEZUGNAHME GRIFFBEREIT AUF.

LIRE SOIGNEUSEMENT CES INSTRUCTIONS AVANT L'INSTALLATION.  
CONSERVER CE MANUEL A PORTEE DE MAIN POUR REFERENCE ULTERIEURE.

LEA CUIDADOSAMENTE ESTAS INSTRUCCIONES ANTES DE INSTALAR.  
GUARDE ESTE MANUAL EN UN LUGAR A MANO PARA LEER EN CASO DE TENER  
ALGUNA DUDA.

PRIMA DELL'INSTALLAZIONE LEGGERE ATTENTAMENTE QUESTE ISTRUZIONI.  
TENERE QUESTO MANUALE A PORTATA DI MANO PER RIFERIMENTI FUTURI.

ΔΙΑΒΑΣΤΕ ΠΡΟΣΕΚΤΙΚΑ ΑΥΤΕΣ ΤΙΣ ΟΔΗΓΙΕΣ ΠΡΙΝ ΑΠΟ ΤΗΝ ΕΓΚΑΤΑΣΤΑΣΗ ΕΧΕΤΕ ΑΥΤΟ  
ΤΟ ΕΓΧΕΙΡΙΔΙΟ ΕΥΚΑΙΡΟ ΓΙΑ ΝΑ ΤΟ ΣΥΜΒΟΥΛΕΥΕΣΤΕ ΣΤΟ ΜΕΛΛΟΝ.

LEES DEZE INSTRUCTIES ZORGVULDIG DOOR VOOR INSTALLATIE. BEWAAR DEZE HAN-  
DLEINDING WAAR U HEM KUNT TERUGVINDEN VOOR LATERE NASLAG.

LEIA COM ATENÇÃO ESTAS INSTRUÇÕES ANTES DE REALIZAR A INSTALAÇÃO.  
MANTENHA ESTE MANUAL AO SEU ALCANCE PARA FUTURAS CONSULTAS.

English

Deutsch

Français

Español

Italiano

Ελληνικά

Nederlands

Portugues

## -CONTENTS

|    |   |    |
|----|---|----|
| 1  | SAFETY CONSIDERATIONS .....                                 | 1  |
| 2  | BEFORE INSTALLATION .....                                   | 2  |
| 3  | SELECTING INSTALLATION SITE .....                           | 4  |
| 4  | PREPARATIONS BEFORE INSTALLATION.....                       | 5  |
| 5  | INDOOR UNIT INSTALLATION .....                              | 7  |
| 6  | REFRIGERANT PIPING WORK .....                               | 8  |
| 7  | DRAIN PIPING WORK.....                                      | 10 |
| 8  | ELECTRIC WIRING WORK .....                                  | 12 |
| 9  | WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER .....   | 13 |
| 10 | FIELD SETTING.....  | 16 |
| 11 | INSTALLATION OF THE SUCTION GRILLE AND THE AIR FILTER ..... | 17 |
| 12 | TEST OPERATION.....   | 17 |

## 1. SAFETY CONSIDERATIONS

Please read these “SAFETY CONSIDERATIONS” carefully before installing air conditioning equipment and be sure to install it correctly. After completing the installation, make sure that the unit operates properly during the start-up operation. Please instruct the customer on how to operate the unit and keep it maintained. Also, inform customers that they should store this installation manual along with the operation manual for future reference.

This air conditioner comes under the term “appliances not accessible to the general public”.

Meaning of warning and caution symbols.



**WARNING** ..... Failure to observe a warning may result in death.



**CAUTION** ..... Failure to observe a caution may result in injury or damage to the equipment.



### WARNING

- Ask your dealer or qualified personnel to carry out installation work. Do not try to install the machine yourself. Improper installation may result in water leakage, electric shocks or fire.
- Perform installation work in accordance with this installation manual. Improper installation may result in water leakage, electric shocks or fire.
- Be sure to use only the specified accessories and parts for installation work. Failure to use the specified parts may result in water leakage, electric shocks, fire or the unit falling.
- Install the air conditioner on a foundation strong enough to withstand the weight of the unit. A foundation of insufficient strength may result in the equipment falling and causing injuries.
- Carry out the specified installation work after taking into account strong winds, typhoons or earthquakes. Improper installation work may result in the equipment falling and causing accidents.
- Make sure that a separate power supply circuit is provided for this unit and that all electrical work is carried out by qualified personnel according to local laws and regulations and this installation manual. An insufficient power supply capacity or improper electrical construction may lead to electric shocks or fire.
- Make sure that all wiring is secured, the specified wires are used, and no external forces act on the terminal connections or wires. Improper connections or installation may result in fire.
- When wiring the power supply and connecting the wiring between the indoor and outdoor units, position the wires so that the switch box cover can be securely fastened. Improper positioning of the switch box cover may result in electric shocks, fire or the terminals overheating.

- If the refrigerant gas leaks during installation, ventilate the area immediately.  
Toxic gas may be produced if the refrigerant gas comes into contact with fire.
  - After completing the installation work, check that the refrigerant gas does not leak.  
Toxic gas may be produced if the refrigerant gas leaks into the room and comes into contact with a source of fire, such as a fan heater, stove or cooker.
  - Before touching electrical parts, turn off the unit.
- 

## CAUTION

- Ground the air conditioner.  
Do not connect the ground wire to gas or water pipes, lightning conductor or a telephone ground wire.  
Incomplete grounding may result in electric shocks.
  - Be sure to install an earth leakage breaker.  
Failure to install an earth leakage breaker may result in electric shocks.
  - While following the instructions in this installation manual, install drain piping in order to ensure proper drainage and insulate piping in order to prevent condensation.  
Improper drain piping may result in water leakage and property damage.
  - Install the indoor and outdoor units, power cord and connecting wires at least 1 meter away from televisions or radios in order to prevent image interference or noise.  
(Depending on the radio waves, a distance of 1 meter may not be sufficient enough to eliminate the noise.)
  - Remote controller (wireless kit) transmitting distance can result shorter than expected in rooms with electronic fluorescent lamps. (inverter or rapid start types)  
Install the indoor unit as far away from fluorescent lamps as possible.
  - Do not install the air conditioner in the following locations:
    - (a) where a mineral oil mist or an oil spray or vapor is produced, for example in a kitchen  
Plastic parts may deteriorate and fall off or result in water leakage.
    - (b) where corrosive gas, such as sulfurous acid gas, is produced  
Corroding copper pipes or soldered parts may result in refrigerant leakage.
    - (c) near machinery emitting electromagnetic waves  
Electromagnetic waves may disturb the operation of the control system and result in a malfunction of the equipment.
    - (d) where flammable gases may leak, where there are carbon fiber or ignitable dust suspensions in the air, or where volatile flammables such as thinner or gasoline are handled.  
Operating the unit in such conditions may result in fire.
- 

## 2. BEFORE INSTALLATION

- Decide upon a line of transport.
- Leave the unit inside its packaging while moving, until reaching the installation site. Use a sling of soft material, where unpacking is unavoidable or protective plates together with a rope when lifting, to avoid damage or scratches to the unit.
- Refer to the installation manual of the outdoor unit for items not described in this manual.

### 2-1 PRECAUTIONS

- Be sure to read this manual before installing the indoor unit.
- Entrust installation to the place of purchase or a qualified serviceman. Improper installation could lead to leaks and, in worse cases, electric shock or fire.
- When installing the unit in a small room, take measures against to keep refrigerant concentration from exceeding allowable safety limits in the event of refrigerant leakage. Contact the place of purchase for more information. Excessive refrigerant in a closed ambient can lead to oxygen deficiency.
- Use only parts provided with the unit or parts satisfying required specifications. Unspecified parts could cause the unit to fall out of place, or could lead to leaks and, in worse cases, electric shock or fire.
- Do not install or operate the unit in rooms mentioned below.

- Laden with mineral oil, or filled with oil vapor or spray like in kitchens. (Plastic parts may deteriorate which could eventually cause the unit to fall out of place, or could lead to leaks.)
- Where corrosive gas like sulfurous gas exists. (Copper tubing and brazed spots may corrode, which could eventually lead to refrigerant leaks.)
- Where exposed to combustible gases and where volatile flammable gas like thinner or gasoline is used. (Gas in the vicinity of the unit could ignite.)
- Where machines can generate electromagnetic waves. (Control system may malfunction.)
- Where the air contains high levels of salt such as that near the ocean and where voltage fluctuates greatly such as that in factories.





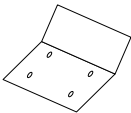
**Also in vehicles or vessels.**





- When selecting installation site, refer to the paper pattern.
- This unit, both indoor and outdoor, is suitable for installation in a commercial and light industrial environment.

If installed as a household appliance it could cause electromagnetic interference.

## 2-2 ACCESSORIES

**Check if the following accessories are included with your unit.**

| Name     | (1) Drain hose   | (2) Clamp metal  | (3) Washer for hanging bracket  | (4) Clamp  | (5) Paper pattern for installation   |
|----------|--|--|---|--|--|
| Quantity | 1 pc.  | 1 pc.  | 8 pcs.  | 6 pcs.   | 1 pc.  |
| Shape    |  |  |  |  |  |

| Name     | Insulation for fitting  | Sealing pad  | (Other)<br>• Operation manual<br>• Installation manual |
|----------|---|--|--|
| Quantity | 1 each  | 1 each   |  |
| Shape    | (6) For gas pipe<br><br>(7) For liquid pipe<br> | (8) Large<br><br>(9) Small<br> |  |

## 2-3 OPTIONAL ACCESSORIES

- These are two types of remote controllers: wired and wireless. Select a remote controller according to customer request and install in an appropriate place.

| Remote controller type | Cooling only type | Heat pump type |
|------------------------|-------------------|----------------|
| Wired type             | CZ-01RT11P        |                |
| Wireless type          | —                 | CZ-01RWT12P    |

### NOTE

- If the customer wishes to use a remote controller that is not listed above, select a suitable remote controller after consulting catalogs and technical materials.

**FOR THE FOLLOWING ITEMS, TAKE SPECIAL CARE DURING CONSTRUCTION AND CHECK AFTER INSTALLATION IS FINISHED.**

**Items to be checked after completion of work**

| Items to be checked  | If not properly done, what is likely to occur        | Check |
|--|--|-------|
| Is the indoor unit fixed firmly?   | The unit may drop, vibrate or make noise.            |       |
| Is the gas leak test finished?   | It may result in insufficient cooling.               |       |
| Is the unit fully insulated?   | Condensate water may drip.                           |       |
| Does drainage flow smoothly?   | Condensate water may drip.                           |       |
| Does the power supply voltage correspond to that shown on the name plate?            | The unit may malfunction or the components burn out. |       |
| Are wiring and piping correct?   | The unit may malfunction or the components burn out. |       |
| Is the unit safely grounded?   | Dangerous at electric leakage.                       |       |
| Is wiring size according to specifications?  | The unit may malfunction or the components burn out. |       |
| Is something blocking the air outlet or inlet of either the indoor or outdoor units? | It may result in insufficient cooling.               |       |
| Are refrigerant piping length and additional refrigerant charge noted down?          | The refrigerant charge in the system is not clear.   |       |

**2-4 NOTE TO THE INSTALLER**

- Read this manual carefully to ensure correct installation. Be sure to instruct the customer how to operate the system showing him/her the enclosed operation manual.
- Explain to the customer what system is installed on the site and be sure to fill in what is required in the column shown on "WHAT TO DO BEFORE OPERATION" of the operation manual.

**3. SELECTING INSTALLATION SITE**

**(1) Select an installation site where the following conditions are fulfilled and that meets your customer's approval.**

- Where optimum air distribution can be ensured.
- Where nothing blocks air passage.
- Where condensate can be properly drained.
- If supporting structural members are not strong enough to take the unit's weight, the unit could fall out of place and cause serious injury.
- Where the false ceiling is not noticeably on an incline.
- Where sufficient clearance for maintenance and service can be ensured. **(Refer to Fig. 1)**  
If sufficient clearance could be ensured at\*, leave a space of 200 mm or more between the unit and its surroundings easier maintenance and service.
- Where piping between indoor and outdoor units is possible within the allowable limit. (Refer to the installation manual for the outdoor unit.)
- Keep the indoor and outdoor units, power cable and transmission wiring, at least 1 m from TVs and radios, to prevent distorted pictures and static. (Depending on the type and source of the electrical waves, static may be heard even when more than 1 m away.)

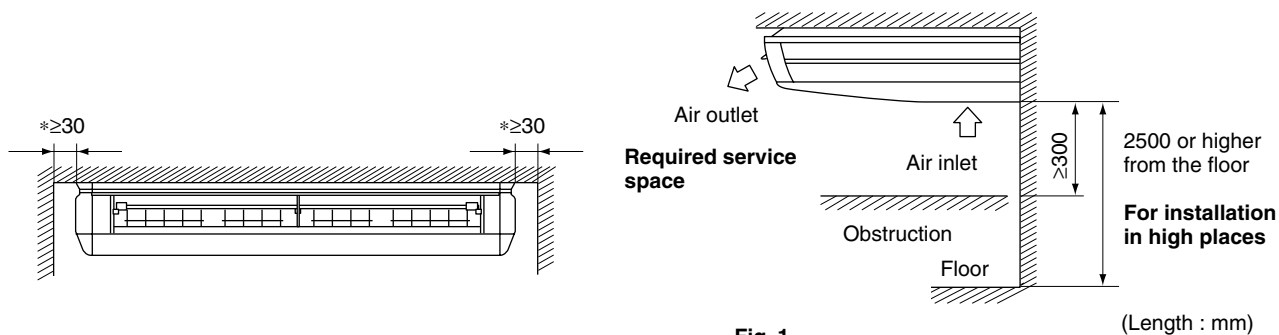


Fig. 1

- (2) Use suspension bolts for installation. Check whether the ceiling is strong enough to support the weight of the unit or not. If there is a risk, reinforce the ceiling before installing the unit.  
(Installation pitch is marked on the paper pattern for installation. Refer to it to check for points requiring reinforcing.)
- (3) This indoor unit may be installed on ceilings up to 3.5 m in height. However, if the ceiling is higher than 2.7m, the remote control will have to be set locally. (Refer to “10. FIELD SETTING” on page 16)

## 4. PREPARATIONS BEFORE INSTALLATION

- (1) Relative positions of indoor unit, suspension bolt, piping hole, drain piping hole, and electric wire hole position. (Refer to Fig. 2)

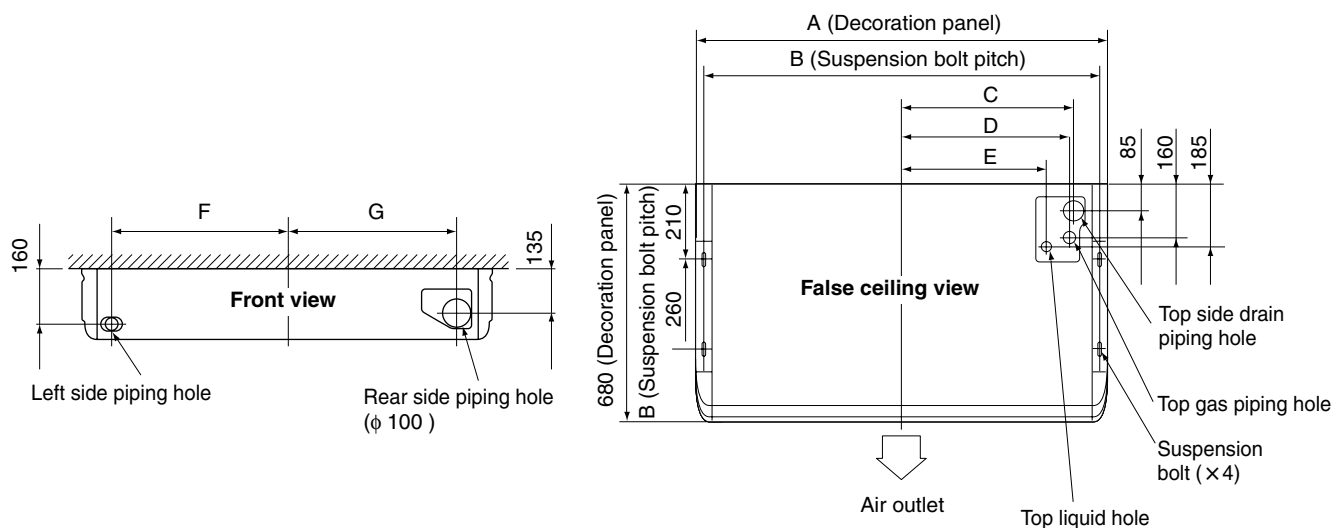


Fig. 2

| Model       | A    | B    | C   | D   | E   | F   | G   |
|-------------|------|------|-----|-----|-----|-----|-----|
| CS-32TMJPL  | 960  | 920  | 390 | 375 | 310 | 400 | 375 |
| CS-63TMJPL  | 1160 | 1120 | 490 | 475 | 410 | 500 | 475 |
| CS-100TMJPL | 1400 | 1360 | 610 | 595 | 530 | 620 | 595 |

## (2) Make the suspension bolt hole, piping hole, drain piping hole.

- Refer to the paper pattern for installation for hole positions.
- Fix the positions for suspension bolt, piping hole, drain piping hole, and electric wire hole, and make the openings.

## (3) Detach the parts for indoor unit.

### 1) Detach the suction grille.

- Slide the suction grille fixing knobs (2 parts) backward (arrow direction) and open the suction grille widely. **(Refer to Fig. 3)**
- Keep the suction grille opened. Holding the knob on the back of suction grille, pull to the front direction to remove. **(Refer to Fig. 4)**

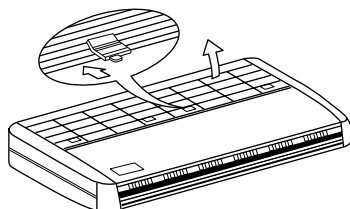


Fig. 3

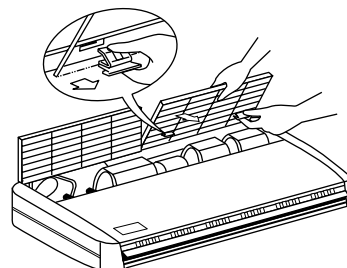


Fig. 4

### 2) Detach the side panel.

- Remove the side panel fixing screw 1) and pull to the front direction (arrow direction) to remove. **(Refer to Fig. 5)**
- Pull out of the accessories.

### 3) Remove the hanger bracket.

- Loosen two hanger bracket setting bolts (M8) (two on each side) on each side for less than 10 mm. **(Refer to Fig. 6 and 7)**
- Remove two hanger bracket fixing bolts (M5) on the rear side. Detach the hanger bracket by pulling backwards. **(Refer to Fig. 7)**

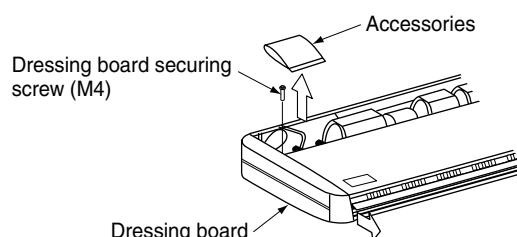


Fig. 5

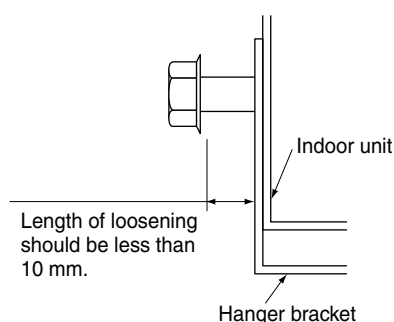


Fig. 6

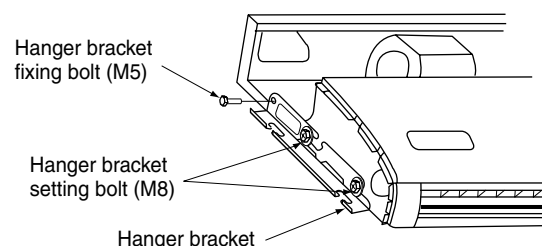


Fig. 7

### 4) Set the suspension bolt. (Use W3/8 or M8-M10 size suspension bolts.)

- Adjust the distance from the unit to the ceiling slab beforehand. **(Refer to Fig. 8)**

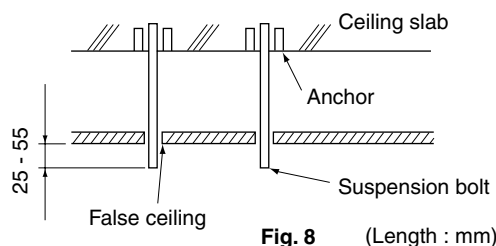


Fig. 8 (Length : mm)

Use a hole-in-anchor for existing ceilings, and a sunken insert, sunken anchor or other part to be procured in the field for new ceilings to reinforce the ceiling to bearing the weight of the unit. Adjust clearance from the ceiling before proceeding further.

## NOTE

- All the above parts are part to be procured in the field.

## 5. INDOOR UNIT INSTALLATION

Installing optional accessories before installing the indoor unit is easier.

As for the parts to be used for installation work, be sure to use the provided accessories and specified parts designated by our company.

### (1) Secure the hooks to the eyebolts. (Refer to Fig. 9)

#### NOTE

- To ensure they are safely secured, use the included washers, and secure them with a double nut to make sure.
- (2) Lift the indoor unit's main body, insert the bolt (M8) for the hook into the attachment part on the hook, while sliding the main body from the front. (Refer to Fig. 10)
- (3) Fasten the bolts for the hooks (M8) securely in the four locations, left and right. (Refer to Fig. 10)
- (4) Replace the screws for the hooks which had been removed (M5) securely in 2 places left and right. (Refer to Fig. 10)

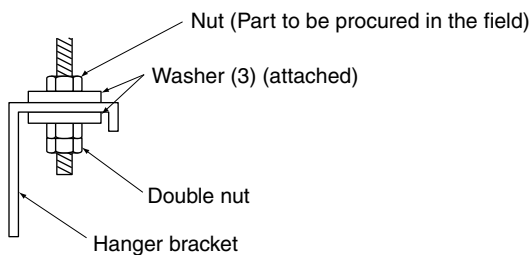


Fig. 9

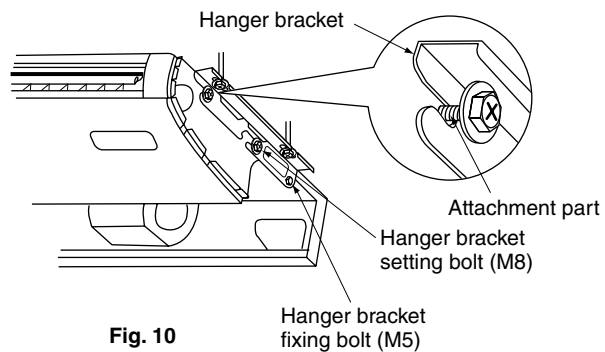


Fig. 10

- (5) When hanging the indoor unit main body, be sure to use a level or a plastic tube with water in it to make sure the drain piping is set either level or slightly tilted, in order to ensure proper drainage. (Refer to Fig. 11)

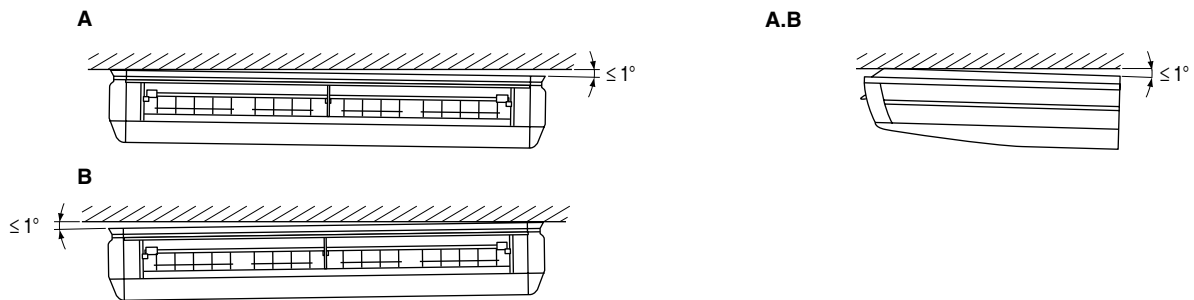


Fig. 11

#### A. When the drain piping is tilted to the right, or to the right and back.

Place it level, or tilt it slightly to the right or the back. (Within  $1^\circ$ .)

#### B. When the drain piping is tilted to the left, or to the left and back.

Place it level, or tilt it slightly to the left or the back. (Within  $1^\circ$ .)

#### CAUTION

Setting the unit at an angle opposite to the drain piping might cause leaks.



## 6. REFRIGERANT PIPING WORK

⟨For refrigerant piping of outdoor units, see the installation manual attached to the outdoor unit.⟩

⟨Be sure to thermally insulate both the gas pipes and fluid pipes. Water leakage may result if the pipes are not insulated. (Only use insulation resistant to at least 120 °C.)⟩

Furthermore, if the temperature/humidity in the refrigerant piping are expected to exceed 30 °C or 80% RH, the thermal insulation of the refrigerant pipes should be strengthened (to be a thickness of 20 mm or more). There may be some condensation on the surface of the insulation material.⟩

⟨Before rigging tubes, check which type of refrigerant is used. Proper operation is not possible if the types of refrigerant are not the same.⟩

### (1) In case of backward piping

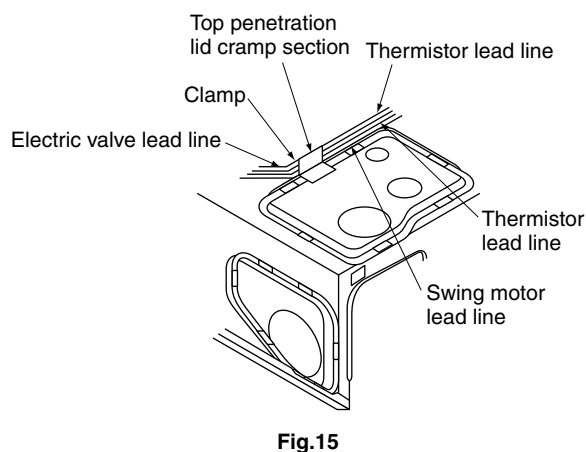
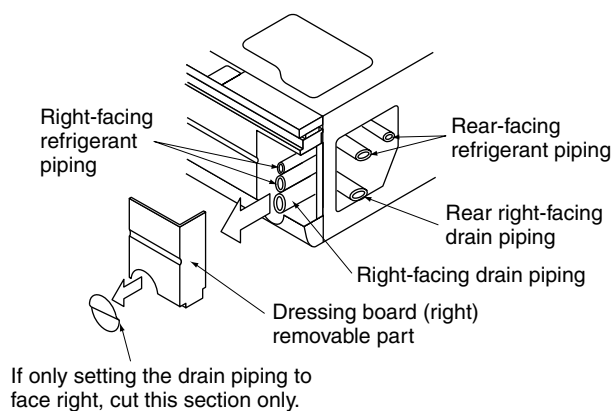
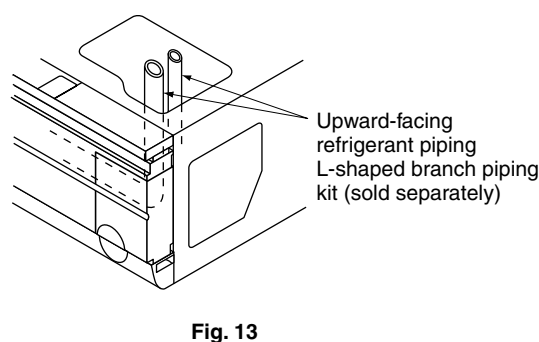
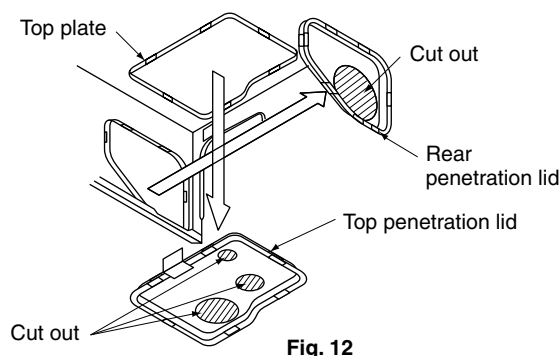
- Remove the rear cover for piping. (Refer to Fig. 12, 14)

### (2) In case of upward piping

- In case of upward piping, optional L-shape piping kit is required.
- Remove the cover for ceiling outlet and use optional L-shape piping kit for piping. (Refer to Fig.12, 13)

### (3) In case of right side piping

- Cut the slit on the decorative laminated sheet (Right) and perform piping. (Refer to Fig. 14)



- When piping is complete, cut the removed penetration lid into the shape of the piping using scissors and attach. As when before removing the top penetration lid, secure the lead lines for the swing motor and thermistor by passing them through the clamp part on the top penetration lid. (Refer to Fig. 12, 15)
- When doing this, block any gaps between the piping penetration lid and the pipes using putty to prevent dust from entering the indoor unit.

### CAUTION

- Use a pipe cutter and flare suitable for the type of refrigerant.
- Apply ether oil or ester oil around the flare portions before connecting.
- To prevent dust, moisture or other foreign matter from infiltrating the tube, either pinch the end or cover it with tape.
- Be sure to use both a spanner and torque wrench together, when connecting or disconnecting pipes to/from the unit. (Refer to Fig. 16)
- Refer to Table 1 for flare measurements.

- When connecting the flare nut, coat the flare both inside and outside with ether oil or ester oil and initially tighten by hand 3 or 4 turns before tightening firmly. **(Refer to Fig. 17)**

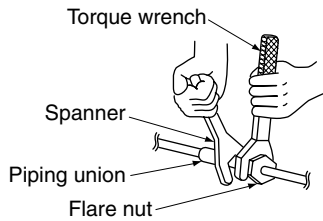


Fig. 16

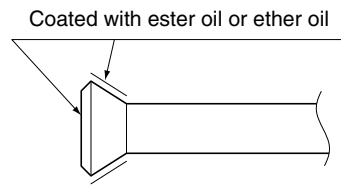


Fig. 17



## CAUTION

**Overtightening may damage the flare and cause leaks.**

Use “Tabel 2” as a reference if a torque wrench is not available. Once work is complete, make sure there is no gas leaking. As the flare nut is tightened with the wrench, the torque will suddenly increase. From that position, tighten the nut to the angle shown on “Tabel 2”.

- Make absolutely sure to execute heat insulation works on the pipe-connecting section after checking gas leakage by thoroughly studying the following figure and using the attached heat insulating materials for fitting (6) and (7). (Fasten both ends with the clamps (4) (attached).) **(Refer to Fig. 18)**
- Wrap the sealing pad (9) (attached) only around the insulation for the joints on the gas piping side. **(Refer to Fig. 19)**



## CAUTION

Be sure to insulate any field piping all the way to the piping connection inside the unit. Any exposed piping may cause condensation or burns if touched.

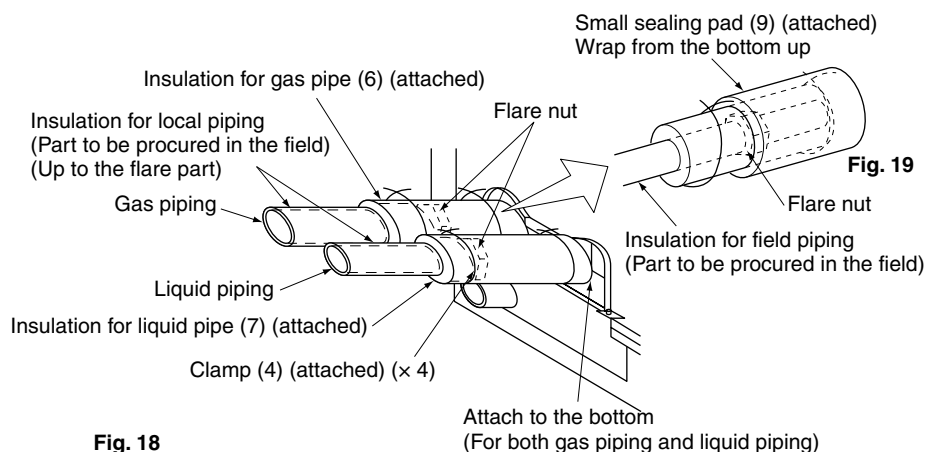


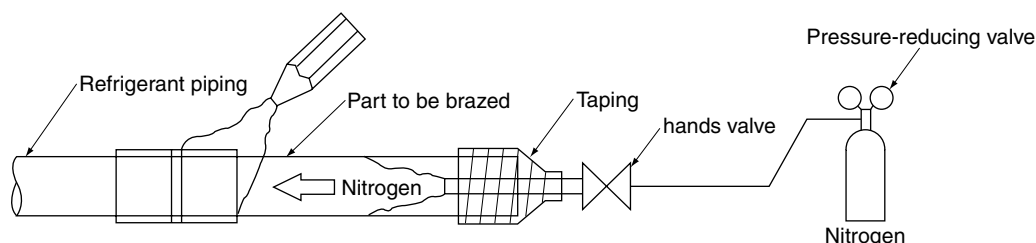
Fig. 18

Fig. 19

- When brazing the refrigerant piping, only begin brazing after having carried out nitrogen substitution (NOTE 1) or while inserting nitrogen into the refrigerant piping (NOTE 2). Once this is done, connect the indoor unit with a flared or a flanged connection.

## NOTES

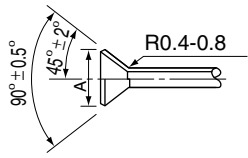
- Refer to the “Manual for Multi Installation for Buildings” for directions on how to carry out nitrogen substitution. (Inquire with your dealer.)
- Nitrogen should be set to 0.02 Mpa (0.2 kg/cm<sup>2</sup>) with a pressure-reducing valve if brazing while inserting nitrogen into the piping.



**The flare nuts used must be those included with the main body.**

- Refer to Table 1 for tightening torque.

Table 1

| Pipe gauge | Tightening torque                   | Flare dimension A (mm) | Flare shape   |
|------------|-------------------------------------|------------------------|---|
| φ 6.4      | 14.2 – 17.2N·m (144 – 176 kgf·cm)   | 8.3 – 8.7              |  |
| φ 9.5      | 32.7 – 39.9N·m (333 – 407 kgf·cm)   | 12.0 – 12.4            |   |
| φ 12.7     | 49.5 – 60.3N·m (504 – 616 kgf·cm)   | 15.4 – 15.8            |   |
| φ 15.9     | 61.8 – 75.4N·m (630 – 770 kgf·cm)   | 18.6 – 19.0            |   |
| φ 19.1     | 97.2 – 118.6N·m (990 – 1210 kgf·cm) | 22.9 – 23.3            |   |

#### — Not recommendable but in case of emergency —

You must use a torque wrench but if you are obliged to install the unit without a torque wrench, you may follow the installation method mentioned below.

**After the work is finished, make sure to check that there is no gas leak.**

When you keep on tightening the flare nut with a spanner, there is a point where the tightening torque suddenly increases. From that position, further tighten the flare nut the angle shown below:

Table 2

| Pipe size     | Further tightening angle | Recommended arm length of tool |
|---------------|--------------------------|--------------------------------|
| φ 6.4 (1/4")  | 60 to 90 degrees         | Approx. 150mm                  |
| φ 9.5 (3/8")  | 60 to 90 degrees         | Approx. 200mm                  |
| φ 12.7 (1/2") | 30 to 60 degrees         | Approx. 250mm                  |
| φ 15.9 (5/8") | 30 to 60 degrees         | Approx. 300mm                  |
| φ 19.1 (3/4") | 20 to 35 degrees         | Approx. 450mm                  |

## 7. DRAIN PIPING WORK

Rig the drain pipe as shown below and take measures against condensation. Improperly rigged piping could lead to leaks and eventually wet furniture and belongings.

### (1) Rig drain piping

- For drain work, rig the pipes so that they drain reliably.
- The drain pipe outlet direction can be chosen from the right rear, right, left rear, and left. Refer to "REFRIGERANT PIPING WORK" for right rear and right direction, and refer to Fig. 20 for left rear and left direction.

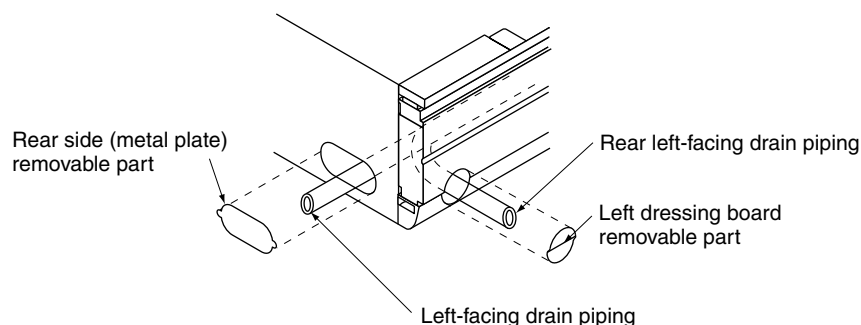


Fig. 20

- For left drain pipe outlet, remove the rubber plug and the insulation on the drain pipe connecting opening on the left side of the unit and change the position to the right side.

- Insert the rubber stopper securely, all the way to the base, in order to prevent water leakage.
- The diameter of the drain pipe should be greater than or equal to the diameter of the connecting pipe. (Vinyl tube; pipe size: 20 mm; outer dimension: 26 mm)
- Keep the drain pipe short and sloping downwards at a gradient of at least 1/100 to prevent air pockets from forming. **(Refer to Fig. 21)**
- Use the attached drain hose (1) and clamp (2).

Insert the drain hose into the drain socket, up to the gray tape. **(Refer to Fig. 22)**

Tighten the clamp until the screw head is less than 4 mm from the hose. **(Refer to Fig. 23)**

(Be careful of the installation direction. Install so that the clamp metal does not contact the intake grill.)

- Wrap the attached sealing pad (8) over the clamp and drain hose to insulate. **(Refer to Fig. 23)**
  - No folding of drain hose inside the indoor unit. **(Refer to Fig. 24)**
- (If there is slack in the drain hose, it may cause damage to the intake grill.)

(When drain hose is connected)

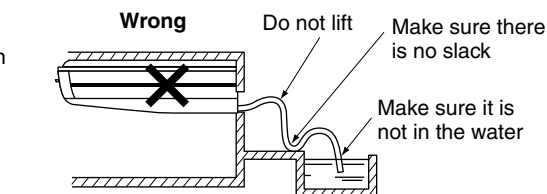
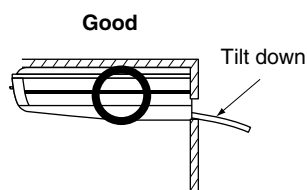


Fig. 21

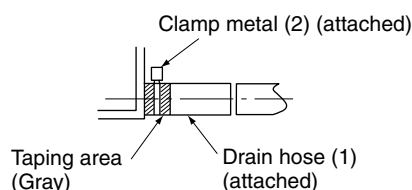


Fig. 22

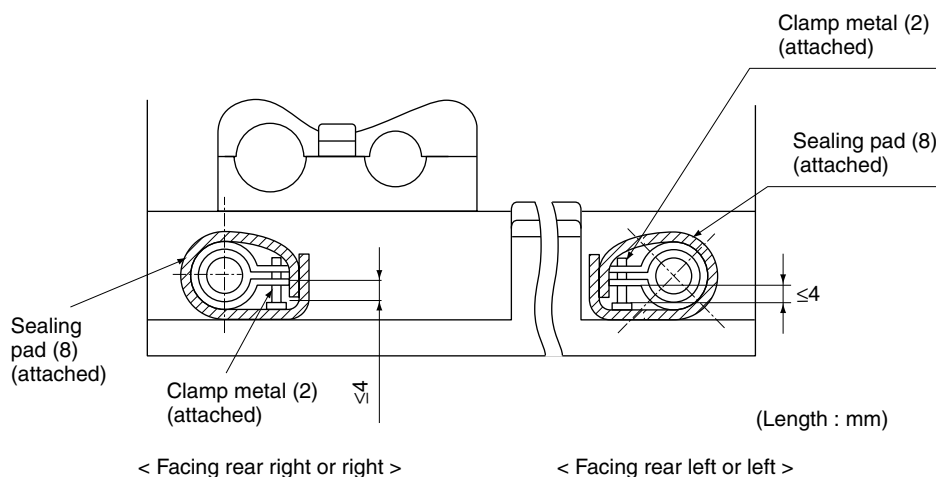


Fig. 23

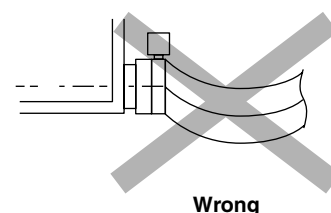


Fig. 24

## (2) Confirm that smooth drainage is achieved after the piping work.

- Add 600 cc of water in the drain pan from the air outlet for confirming drainage. **(Refer to Fig. 25)**

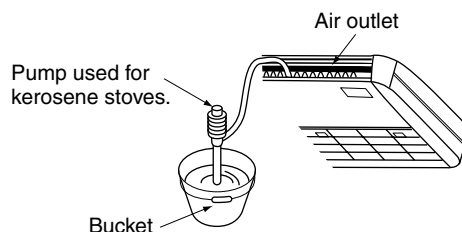


Fig. 25

## ⚠ CAUTION

Drain piping connections

Do not connect the drain piping directly to sewage pipes that smell of ammonia. The ammonia in the sewage might enter the indoor unit through the drain pipes and corrode the heat exchanger.

## 8. ELECTRIC WIRING WORK

### 8-1 GENERAL INSTRUCTIONS

- All field supplied parts and materials, electric works must conform to local codes.
- Use copper wire only.
- Follow the “WIRING DIAGRAM” attached to the unitbody to wire the outdoor unit, indoor units and the remote controller. For details on hooking up the remote controller, refer to the “INSTALLATION MANUAL OF REMOTE CONTROLLER.”
- All wiring must be performed by an authorized electrician.
- This system consists of multiple indoor units. Mark each indoor unit as unit A, unit B . . . , and be sure the terminal board wiring to the outdoor unit and HR box are properly matched. If wiring and piping between the outdoor unit and an indoor unit are mismatched, the system may cause a malfunction.
- Do not turn on the power until all work is done.

### 8-2 ELECTRICAL CHARACTERISTICS

| Units                                   |    |         |                      | Power supply |     | Fan motor |     |
|---|----|---------|----------------------|--------------|-----|-----------|-----|
| Model                                   | Hz | Volts   | Voltage range        | MCA          | MFA | kW        | FLA |
| CS-32TMJPL<br>CS-63TMJPL<br>CS-100TMJPL | 50 | 220-240 | Max. 264<br>Min. 198 | 0.8          | 15  | 0.062     | 0.6 |
|   |    |         |                      | 0.8          | 15  | 0.062     | 0.6 |
|   |    |         |                      | 0.9          | 15  | 0.130     | 0.7 |


MCA: Min. Circuit Amps (A);

MFA: Max. Fuse Amps (A)

kW: Fan Motor Rated Output (kW);

FLA: Full Load Amps (A)

### 8-3 SPECIFICATIONS FOR FIELD SUPPLIED FUSES AND WIRE

| Model       | Power supply wiring  |           |   | Transmission wiring                               |                             |
|-------------|--|-----------|---|---|-----------------------------|
|             | Field fuses<br> | Wire      | Size                                    | Wire  | Size                        |
| CS-32TMJPL  | 15A  | H05VV-U3G | Wire size must comply with local codes. | Vinyl cord with sheath or cable (2 wire) (NOTE 2) | 0.75 - 1.25 mm <sup>2</sup> |
| CS-63TMJPL  |  |           |   |   |                             |
| CS-100TMJPL |  |           |   |   |                             |

#### NOTES

1. Allowable length of transmission wiring between indoor/outdoor units and between the indoor unit and the remote controller is as follows.

(1) Outdoor unit – Indoor unit:

Max. 1000 m (Total wiring length: 2000 m)

(2) Indoor unit – Remote controller:

Max. 500 m

2. Insulated thickness: 1 mm or more

## 9. WIRING EXAMPLE AND HOW TO SET THE REMOTE CONTROLLER

### 9-1 HOW TO CONNECT WIRINGS

〈Method of wiring power supply, units and connecting remote controller cords〉 (Refer to Fig. 26)

- **Power wire**

Hold the switchbox lid and loosen the anchoring screws (2 pc.), then remove the switchbox lid. Align the phase and connect the wire to the power terminal block (6P) inside the switchbox. After connecting, use the included clamps (4) to bind the wire, together with the ground wire, to the anchor. (Refer to Fig. 27)

- **Remote control wire and connecting wire**

Hold the switchbox lid and loosen the anchoring screws (2 pc.), then remove the switchbox lid. Connect the wires to the power terminal block (6P) inside the switchbox. After connecting, use the included clamps (4) to bind the remote control wire, together with the connecting wire, to the anchor. (Refer to Fig. 27)

#### ⚠ CAUTION

- When cramping wiring, use the included cramping material to do an appropriate cramp to prevent undue pressure on the wiring connections. When carrying out the wiring, bundle the wires to prevent the switch box lid from lifting, and attach the lid firmly. When attaching the switch box avoid getting wires caught always use a wiring through-lid to prevent damage to the wires.
- Make sure to avoid external force to the field wiring(\*) such as by laying them in protection pipes or in the wall. (Refer to Fig. 26)

#### [ PRECAUTIONS ]

1. Use ring-type crimp-style terminals for connecting wires to the power supply terminal board. If unavailable, observe the following points when wiring.

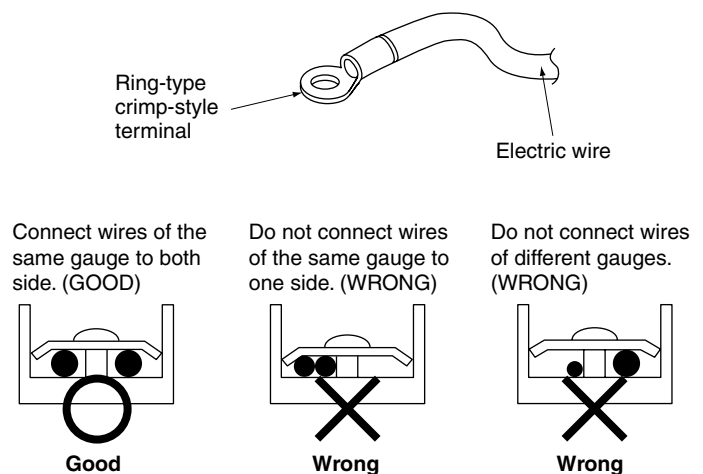
- Do not connect wires of different gauge to the same power supply terminal. (Looseness in the connection may cause overheating.)
- When connecting wires of the same gauge, connect them according to the right-hand figure.
- Use the specified electric wire. Connect the wire securely to the terminal. Lock the wire down without applying excessive force to the terminal.

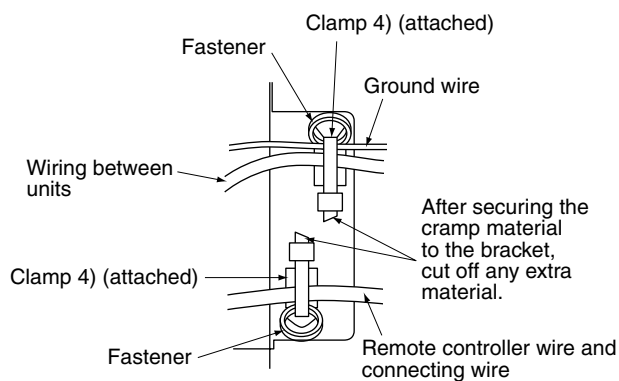
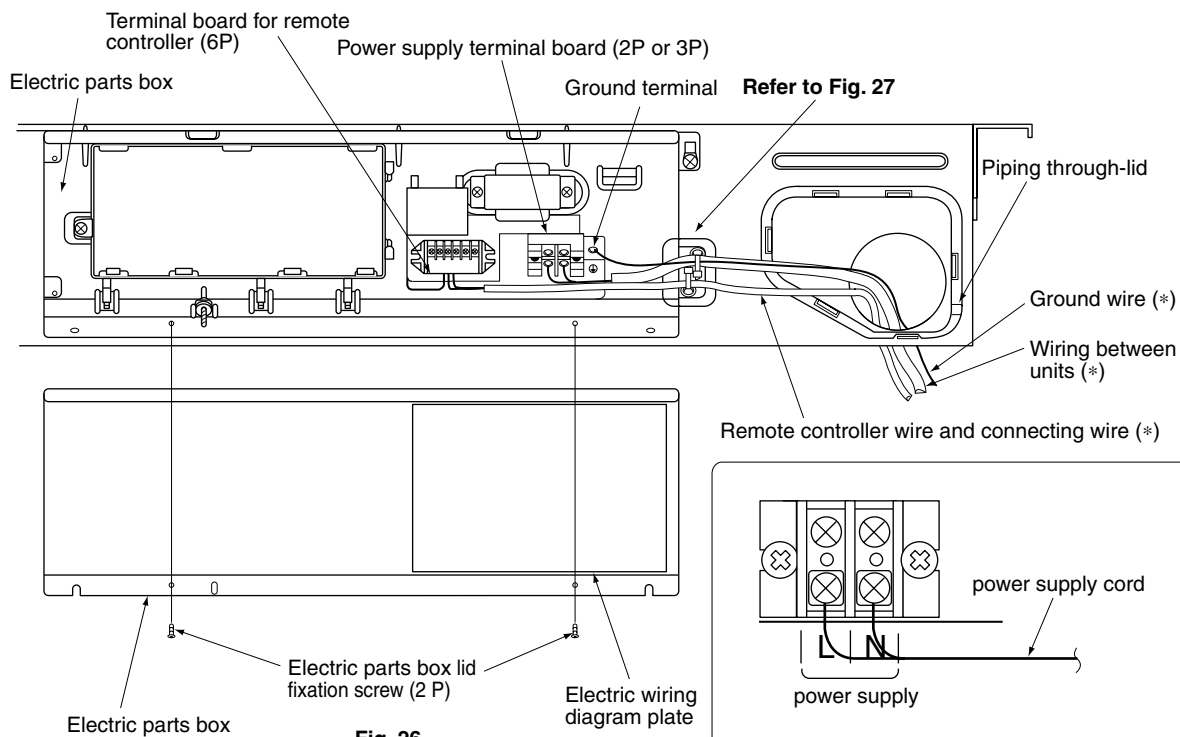
2. Keep total current of crossover wiring between indoor units less than 12 A.

Branch the line outside the terminal board of the unit in accordance with electrical equipment standards, when using two power wiring of a gauge greater than 2 mm<sup>2</sup> (φ1.6).

The branch must be sheathed to provide an equal or greater degree of insulation as the power supply wiring itself.

3. Do not connect wires of different gauge to the same grounding terminal. Looseness in the connection may deteriorate protection.
4. Keep transmission wiring at least 50 mm away from power supply wiring. The equipment may malfunction if subjected to electrical (external) noise.
5. For remote controller wiring, refer to the "INSTALLATION MANUAL OF REMOTE CONTROLLER" attached to the remote controller.
6. **Never connect power supply wiring to the terminal board for transmission wiring. A mistake of the sort could damage the entire system.**
7. Use only specified wire and tightly connect wires to terminals. Be careful wires do not place external stress on terminals. Keep wiring in neat order and so as not to obstruct other equipment such as popping open the service cover. Make sure the cover closes tight. Incomplete connections could result in overheating, and in worse case, electric shock or fire.



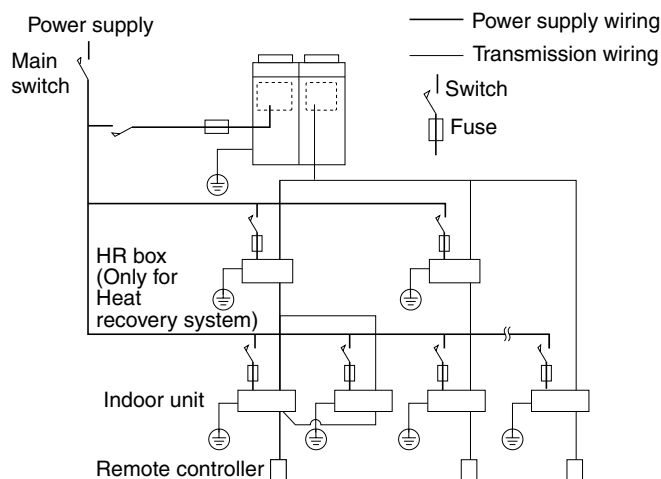


**Fig. 27**

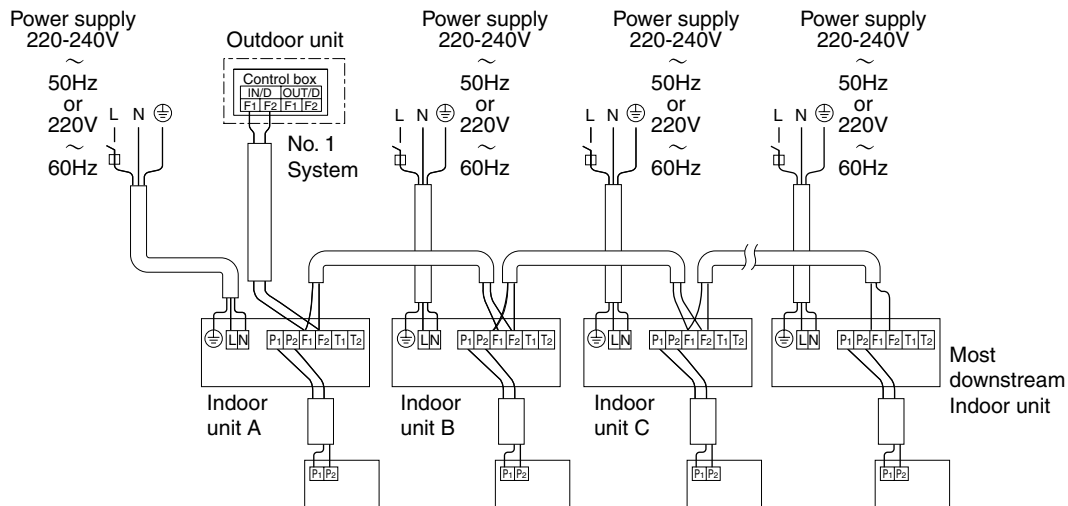
## 9-2 WIRING EXAMPLE

- Fit the power supply wiring of each unit with a switch and fuse as shown in the drawing.

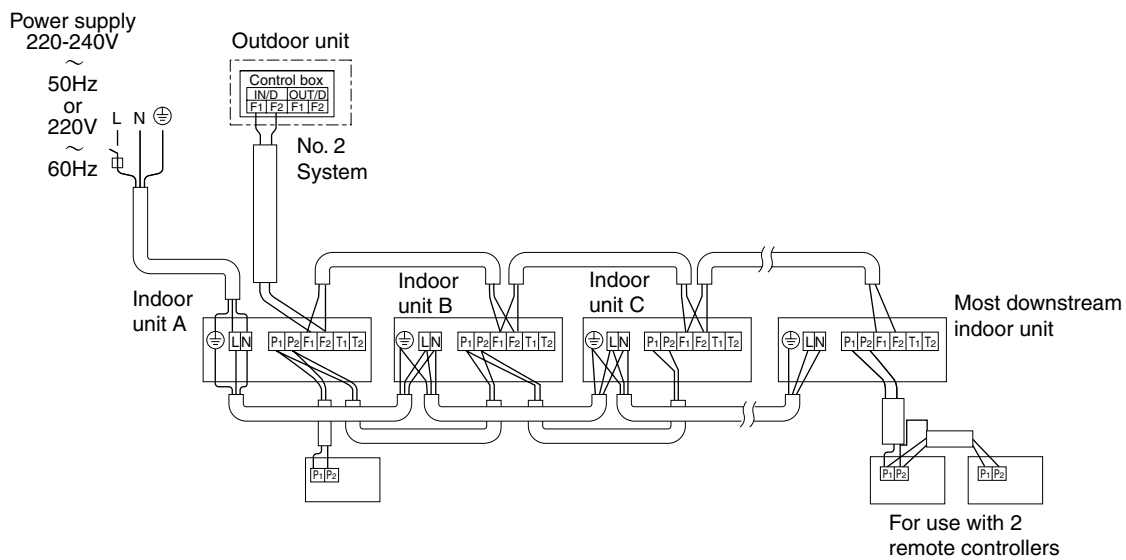
### COMPLETE SYSTEM EXAMPLE (3 systems)



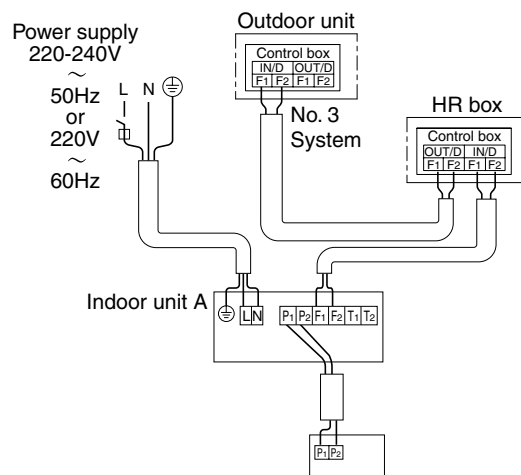
## 1. When using 1 remote controller for 1 indoor unit. (Normal operation)



## 2. For group control or use with 2 remote controllers



## 3. When including HR box



### NOTE

- It is not necessary to designate indoor unit address when using group control. The address is automatically set when power is activated.

### [ PRECAUTIONS ]

- A single switch can be used to supply power to units on the same system. However, branch switches and branch circuit breakers must be selected carefully.
- Do not ground the equipment on gas pipes, water pipes or lightning rods, or crossground with telephones. Improper grounding could result in electric shock.



## 10. FIELD SETTING

**Field setting must be made from the remote controller in accordance with the installation condition.**

- Setting can be made by changing the “Mode No.”, “FIRST CODE NO.”, and “SECOND CODE NO.”.
- For setting and operation, refer to the “FIELD SETTING” in the installation manual of the remote controller.

### 10-1 Setting ceiling height

- Select the SECOND CODE NO. that corresponds to the ceiling height. (Refer to Table 3).  
(SECOND CODE NO. is factory set to “01” for a ceiling height of 2.7m or less.)

Table 3

| Ceiling height (m) | Mode No. | FIRST CODE NO. | SECOND CODE NO. |
|--------------------|----------|----------------|-----------------|
| 2.7 or less        | 13 (23)  | 0              | 01              |
| 2.7- 3.5           |          |                | 02              |

### 10-2 Setting air filter sign

- Remote controllers are equipped with liquid crystal display air filter signs to display the time to clean air filters.
- Change the SECOND CODE NO. according to Table 4 depending on the amount of dirt or dust in the room.  
(SECOND CODE NO. is factory set to “01” for filter contamination-light.)

Table 4

| Setting                        | Spacing time of display air filter sign (long life type) | Mode No. | FIRST CODE NO. | SECOND CODE NO. |
|--------------------------------|--|----------|----------------|-----------------|
| Air filter contamination-light | Approx. 2500 hrs   | 10 (20)  | 0              | 01              |
| Air filter contamination-heavy | Approx. 1250 hrs   |          |                | 02              |

#### When using wireless remote controllers

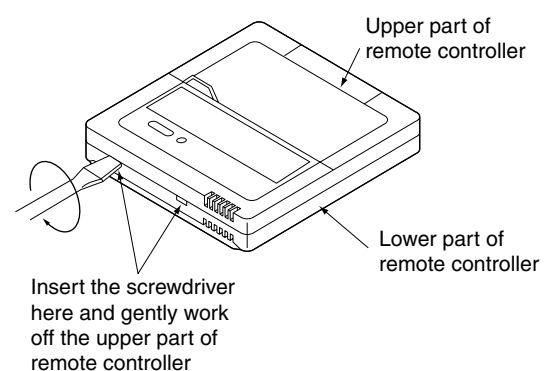
- When using wireless remote controllers, wireless remote controller address setting is necessary. Refer to the installation manual attached to the wireless remote controller for setting instructions.

### 10-3 Control by 2 Remote Controllers (Controlling 1 indoor unit by 2 remote controllers)

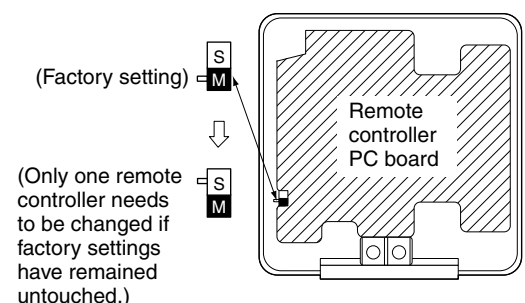
- When using 2 remote controllers, one must be set to “MAIN” and the other to “SUB”.

#### MAIN/SUB CHANGEOVER

- (1) Insert a wedge-head screwdriver into the recess between the upper and lower part of remote controller and, working from the 2 positions, remove carefully the upper part. The remote controller PC board is attached to the upper part of remote controller.



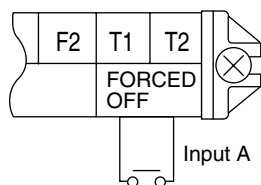
- (2) Turn the MAIN/SUB changeover switch on one of the two remote controller PC boards to “S”. (Leave the switch of the other remote controller set to “M”.)



## 10-4COMPUTERISED CONTROL (FORCED OFF AND ON/OFF OPERATION)

### (1) Wire specifications and how to perform wiring

- Connect input from outside to terminals T1 and T2 of the terminal board. (remote controller to transmission wiring)



|                    |  |
|--------------------|--|
| Wire specification | Sheathed vinyl cord or cable (2 wire)                                  |
| Gauge              | 0.75 - 1.25 mm <sup>2</sup>  |
| Length             | Max. 100 m   |
| External terminal  | Contact that can ensure the minimum applicable load of 15 V DC, 10 mA. |

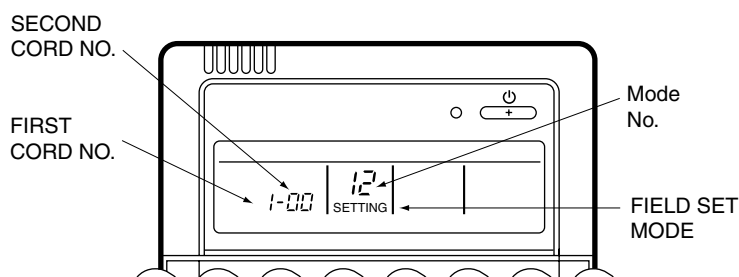
### (2) Actuation

- The following table explains FORCED OFF and ON/OFF OPERATIONS in response to Input A.

| FORCED OFF   | ON/OFF OPERATION               |
|--|--------------------------------|
| Input "ON" stops operation (impossible by remote controllers.) | Input OFF → ON turns ON unit.  |
| Input OFF enables control by remote controller.                | Input ON → OFF turns OFF unit. |

### (3) How to select FORCED OFF and ON/OFF OPERATION

- Turn the power on and then use the remote controller to select operation.
- Set the remote controller to the field set mode. For details, refer to the "HOW TO SET IN THE FIELD", in the remote controller manual.
- When in the field set mode, select mode No. 12, then set the first code (switch) No. to "1". Then set second code (position) No. to "01" for FORCED OFF and "02" for ON/OFF OPERATION. (FORCED OFF at factory set)



## 10-5CENTRALIZED CONTROL

- For centralized control, it is necessary to designate the group No. For details, refer to the manual of each optional controllers for centralized control.

## 11. INSTALLATION OF THE SUCTION GRILLE AND THE AIR FILTER

Install side panel and suction grille properly in the order opposite to detachment.

## 12. TEST OPERATION

Refer to the installation manual of the outdoor unit.

- The operation lamp of the remote controller will flash when an error occurs. Check the error code on the liquid crystal display to identify the point of trouble. An explanation of error codes and the corresponding trouble is provided in "CAUTION FOR SERVICING" of the indoor unit.

